MOBILE HUNTING VESSEL

Invented by

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CROSS-REFERENCE TO RELATED APPLICATION

Not applicable.

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates generally to a mobile hunting vessel designed to allow a hunter to move the vessel to a designated hunting area and partially submerge the vessel to reduce the visibility of the vessel and hunter to flying game. When hunting activities are concluded, the hunter can refloat the vessel and return to the dock.

Description of Related Art

Hunting blinds are commonly used to conceal the presence of hunters from flying game, which are known to have exceptionally keen eyesight. If the flying game detects the presence of any predator, it will often "flare" or veer away from a particular area. For this reason, hunters have devised ways of masking their presence using camouflage, natural vegetation, and stealth.

Concealment of the hunter is especially important when hunting waterfowl, which are naturally attracted to water. Although waterfowl can be hunted in flooded woodland areas, they are commonly hunted over open bodies of water or marshland, thus creating the need for aquatic means of transportation. In the past, hunters have used boats, skiffs,

pirogues, or waders to access "pit blinds," which are essentially metal, fiberglass, or wooden "pill boxes" partially submerged beneath the surface of a marsh and covered with native vegetation, so as to blend into the relatively flat and featureless terrain. As game birds come within shooting distance of the blind, the hunters emerge from within by throwing back the native cover to fire upon their prey. Any game birds that fall more than a few feet from a partially submerged blind must be retrieved by boat, by wading into the water, or by a dog.

In addition to the technical problems faced by hunters in pit blinds, hunters often desire to hunt game birds from different locations, which gives rise to the need for additional blinds, and in some cases, additional means of transportation to and from the blind. Furthermore, seasoned game birds often become conditioned to avoid a particular area after being repeatedly fired upon from the same location, thus making it advantageous for hunters to change locations between hunts.

As can be appreciated from the foregoing discussion, the use of traditional hunting blinds involves a lot of equipment, preparation time, and forethought. What is needed is a mobile hunting blind that satisfies the need to conceal the hunter, but at the same time eliminates the need for a separate access vehicle. Specifically, what is needed is a vessel that allows the hunter to drive to a desired location, partially submerge the vessel to reduce visibility to flying birds, and hunt from within the vessel similar to the manner in which one would hunt from a traditional pit blind.

Known prior art consists of U.S. Patent Nos. 3,503,358; 4,048,939; 4,615,289; 5,060,591; 5,215,025; 6,209,595; and 6,209,470. U.S. Patent No. 4,615,289 to Bloxham discloses a floating dry dock, which may be submerged by flooding floatation chambers and then refloated by blowing water out of the chambers.

U.S. Patent No. 5,215,025 to Talmor discloses a boat with an interior ballast chambers along the length of the boat. The chambers can be flooded to give the boat additional stability when needed.

U.S. Patent No. 3,503,358 to Moesly discloses a longitudinal ballast tank beneath the keel of a boat. Water is transferred between two compartments during acceleration to maintain maximum stability and efficiency from rest to a planing position.

The remaining patents pertain principally to other boat configurations with ballast chambers used to enhance stability. However, none of the above patents utilize submersion or ballast chamber technology in connection with a hunting blind.

OBJECTS OF THE INVENTION

It is an object of the present invention to provide a semi-submersible hunting vessel.

Another object of the present invention is to provide a semi-submersible hunting vessel having one or more ballast chambers.

Another object of the present invention is to provide a semi-submersible hunting vessel with one or more ballast chambers which can be selectively filled or evacuated.

Another object of the present invention is to provide a semi-submersible hunting vessel, which is capable of being easily moved from one location to another.

Another object of the present invention is to provide a semi-submersible hunting vessel that can be moved from one location to another using a motor means.

Another object of the present invention is to provide a semi-submersible hunting vessel with a vertically adjustable motor means.

SUMMARY OF THE INVENTION

A semi-submersible hunting vessel is provided for allowing a hunter to move the vessel to a designated hunting area and partially submerge the vessel to reduce the visibility of the vessel and hunter to flying game. The vessel includes a hull, at least one ballast chamber, a dry chamber, and one or more pumps for filling and evacuating the ballast chamber. In another embodiment, the vessel contains fore and aft ballast chambers for added stabilization. Additionally, the vessel may be equipped with a motor means, which vertically adjusts to the level of the water by sliding up or down along one or more float guides.

In operation, a hunter boards the vessel with guns, ammo, canine retrievers, and other hunting supplies and operates the vessel from a dry chamber. The vessel is moved to a selected hunting location using either paddles or a motor mounted to the rear of the vessel on a motor mount. Once the vessel arrives at the selected hunting location, it is preferably anchored in place using an anchor, outriggers, or the like, depending upon the depth of the water. The vessel is then prepared to take on ballast by activating one or more intake

pumps, which supply ballast water to one or more ballast chambers located within the vessel through intake conduits. In one embodiment, the vessel contains fore and aft ballast chambers located on opposite sides of the dry chamber.

As the ballast chamber(s) fills, the weight of the vessel increases, thereby decreasing the amount of freeboard and the visible surface area of the vessel above the waterline. If the vessel contains a motor, the motor may be attached to a motor mount, which is in turn attached to one or more guide rails designed to allow the motor to vertically adjust to the rising water level. When the desired amount of freeboard is achieved or when the ballast chamber(s) is full, the intake pump is turned off and the dry chamber can be prepared for hunting activities. In order to prevent over filling of the ballast chamber(s), one or more float switches may be installed to interrupt power to the intake pump when a certain level of water is achieved.

The dry chamber may be equipped with perimeter grating designed to receive and secure in place natural vegetation. Alternatively, the dry chamber can be equipped with a flip cage, a camouflage canopy, or any other means for concealing the hunters within. The exterior portions of the vessel may also be painted in a camouflage pattern to reduce visibility to flying game.

Once hunting activities are complete, the one or more ballast chambers may be evacuated using one or more evacuation pumps located within the ballast chamber(s). The evacuation pumps are designed to transfer water from the ballast chamber(s) through a series of conduits, which purge the water from the vessel at or above the gunwales. As the ballast

chamber(s) is evacuated, the weight of the vessel is reduced, causing it to rise above the water surface. Although the vessel is still mobile when the ballast chamber(s) is completely full, it is easier to maneuver when the ballast chamber(s) are empty.

An alternative embodiment of the invention may include a connecting line between fore and aft ballast chambers to allow for the equalization of ballast water.

Another alternative embodiment of the invention includes novel configurations of the ballast chambers, such as ballast chambers built into a compartmentalized hull or ballast chambers located at various other locations throughout the mobile hunting vessel.

Another alternative embodiment of the invention includes a valve and bilge pump for partially flooding and evacuating the dry chamber to further decrease freeboard.

Another alternative embodiment of the invention includes the addition of custom features, such as a dog ladder for allowing a hunting dog to gain access to the dry chamber, benches, gun racks, ammo boxes, and the like.

These and other objects, advantages, and features of this invention will be apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of an embodiment of the mobile hunting vessel.

Figure 2 is an elevation view of one embodiment of the mobile hunting vessel with empty ballast chambers and depicting a motor mount and guide rails.

Figure 3 is an elevation view of an embodiment of the mobile hunting vessel shown in Figure 2, with ballast chambers partially filled.

Figure 4 is a plan view of an embodiment of the mobile hunting vessel depicting the dry chamber and ballast chambers with ballast chamber lids removed.

Figure 5 is a plan view of the embodiment of the mobile hunting vessel shown in Figure 4, ballast chamber lids in place.

Figure 6 is an elevation view of an embodiment of the mobile hunting vessel showing evacuation pump and evacuation conduit details.

Figure 7 is an elevation view of an embodiment of the invention showing a motor float attached to guide members.

Figure 8 is a plan view of the embodiment of the invention shown in Figure 7, further depicting motor mount and intake pump support.

Figure 9 is a plan view of the intake pump and intake pump support, complete with intake conduit and flexible hose.

Figure 10 is a cutaway elevation view of the motor floatation guide, bushing, and guide member.

Figure 11 is a perspective view of the mobile hunting vessel with camouflaging means in place.

Figure 12 is a perspective view of the mobile hunting vessel with an alternative camouflaging means in place.

DETAILED DESCRIPTION OF THE INVENTION

With reference to Figures 1-10, an embodiment of mobile hunting vessel **1** will now be described. As shown in Figures 1-10, mobile hunting vessel **1** comprises a hull **2**, a dry chamber **3**, and one or more ballast chambers. Hull **2**, which comprises bow **4**, stern **5**, port side **6**, and starboard side **7**, may be constructed from any suitable material, including without limitation, aluminum or other metal or metal alloy, wood, fiberglass, plastic, and the like. In the embodiment shown, bow **4** and stern **5** are rectilinear in order to maximize the capacity of the ballast chambers.

In the embodiment shown in Figures 1-6, mobile hunting vessel **1** contains fore ballast chamber **8** and aft ballast chamber **9**. Fore ballast chamber **8** is located between bow **4** and fore bulkhead **10**, which is positioned athwartships. Aft ballast chamber **9** is located between stern **5** and aft bulkhead **11**, which is also positioned athwartships. Fore ballast chamber **8** and aft ballast chamber **9** may be covered to better conceal mobile hunting vessel **1** using fore ballast chamber lid **27** and aft ballast chamber lid **28**, as shown in Figure 5.

Both fore ballast chamber **8** and aft ballast chamber **9** may contain baffling means **15**, which is designed to reduce turbulence and promote stability of the water within the ballast chambers. Baffling means **15** is shown in Figure 4 as a substantially vertical panel between bow **4** and fore bulkhead **10**, and between aft bulkhead **11** and stern **5**. Alternative embodiments involve the use of other baffling means **15** known in the art, including without limitation the use of multiple vertically arranged baffles, multiple horizontally spaced baffles,

a combination of both, a honeycombed baffling structure, or any structure that will reduce turbulence and promote stability of the water within the ballast chambers.

Fore ballast chamber **8** and aft ballast chamber **9** are filled using intake pump **22**, which may be mounted atop intake pump mount **23** at stern **5** as shown in Figures 4 and 8. Intake pump **22** draws water from at or below water surface **24** and routes water through intake hose **25** to intake conduit **26**, thereby filling fore ballast chamber **8** and aft ballast chamber **9**.

Referring to Figures 4, 7, 8, and 9, intake hose **25** attaches intake pump **22** to intake coupling **29**, which may be located on the lower portion **30** of right guide member **31**. Lower portion **30** is fabricated using metal piping, but may be formed from other materials commonly known in the art. Lower portion **30** projects through stern **5** and is coupled to intake conduit **26** on the interior of stern **5**. Although water may fill upper portion **33** of right guide member **31** by moving through socket weld **32**, water will not flow through upper portion **33** due to the sealed connection of upper portion **33** to stern **5**. In the alternative, intake hose **25** could be attached to left guide member **46** in the same manner described herein.

As shown in Figure 4, intake conduit **26** rises vertically from inside aft ballast chamber **9** and empties through aft intake discharge **34** into aft ballast chamber **9** at a point near gunwale **35**. In the embodiment shown in Figure 4, intake conduit **26** may additionally be routed to fore ballast chamber **8**, where water is discharged near gunwale **35** via fore intake discharge **36**.

In operation, intake pump **22** may be activated by a hunter to begin drawing water from at or below water surface **24**, which water is routed through intake hose **25**, through lower portion **30**, and into intake conduit **26**. As the water discharges into the ballast chambers through aft ballast discharge **34** and fore ballast discharge **36**, the weight of mobile hunting vessel **1** increases, thus forcing hull **2** further below water surface **24** and increasing the amount of freeboard (space between gunwale **35** and water surface **24**).

It will be readily appreciated by those skilled in the art that the location of intake pump **22** near the bottom of stern **5** will serve to gradually increase the amount of hydraulic head pressure at intake pump **22** as mobile hunting vessel **1** takes on ballast water and sinks below water surface **24**. Additionally, the amount of freeboard desired by the hunter can be achieved by increasing or decreasing the amount of ballast water in the ballast chambers. Of course, appropriate safety mechanisms known to those in the art, such as floating switches (not shown) and the like, could be installed to deactivate intake pump **22** when a certain maximum level of ballast water is achieved in the ballast tanks. Similar safety mechanisms could be used to deactivate intake pump **22** when a certain minimum freeboard is surpassed.

As shown in Figures 1-6, dry chamber **3** is located between fore bulkhead **10** and aft bulkhead **11**, thus defining an interior dry area to allow hunters to hunt flying game from within. In addition to providing a submersible chamber from which hunters may hunt flying prey, dry chamber **3** houses control panel **12**, which may contain common boating features, such as steering means **13** and throttle **14**, gauges (not shown), and the like. Control panel **12** may also contain pump switches **21**, or pump switches **21** may be located separately

within dry chamber **3** as shown in Figure 4. Additionally, dry chamber **3** may house other amenities necessary for the comfort of hunters and/or necessary for the hunting of flying game, such as benches or chairs for sitting, gun racks, ammunition storage containers, and camouflaging means **16**.

If desired by the hunter, dry chamber **3** may be partially flooded in order to increase the amount of freeboard by temporarily opening valve **50**, which may be located near the intersection of aft bulkhead **11** and the floor of dry chamber **3**. By opening valve **50** as shown in Figures 4-6, ballast water from aft ballast chamber **9** could be allowed to flow into dry chamber **3**. If so desired, valve **50** could be located at the intersection of fore bulkhead **10** and the floor of dry chamber **3** in order to utilize ballast water from fore ballast chamber **8**. If further desired, two valves **50** could be installed on mobile hunting vessel **1**, one at fore bulkhead **10** and the other at aft bulkhead **11** to allow flooding of dry chamber **3** using ballast water from both fore ballast chamber **8** and aft ballast chamber **9**.

When the hunter desires to evacuate ballast water from dry chamber **3**, a bilge pump (not shown) or other evacuation means may be necessary. In the alternative, the hunter could first evacuate ballast water from fore ballast chamber **8** and aft ballast chamber **9**, then open valve **50** to allow water to flow into aft ballast chamber **9** (if valve **50** is located on aft bulkhead **11**) due to the resulting head pressure.

In order to ensure that fore ballast chamber **8** and aft ballast chamber **9** contain substantially the same amount of water and more importantly, to ensure stability of mobile hunting vessel **1**, equalizing means (not shown) may be installed between fore ballast

chamber **8** and aft ballast chamber **9**. Equalizing means may include one or more pipes running along the floor of dry chamber **3** between fore bulkhead **10** and aft bulkhead **11** to fluidly connect fore ballast chamber **8** and aft ballast chamber **9**.

In one embodiment, camouflaging means **16** may include canopy **17** and canopy mounting means **18** for erecting canopy **17** as shown in Figure 11. Canopy mounting means **18** may be fashioned from any material sturdy enough to hold canopy **17** above dry chamber **3**. As shown in Figure 11, mounting means **18** may be simply a series of arcs or semicircles connected from port side **6** of dry chamber **3** to starboard side **7** of dry chamber **3**. The arcs or semicircles can be fashioned from PVC or metal piping, wood, or other materials known in the art. Camouflaging means **16** may also be grating **19** for receiving and securing in place natural vegetation **20**, as shown in Figure12.

When the hunter desires to relocate mobile hunting vessel **1** or return to the dock, the ballast chamber(s) can be evacuated using one or more evacuation pumps. In the embodiment shown in Figures 4 and 6, mobile hunting vessel **1** utilizes fore evacuation pump **37** and aft evacuation pump **38**, which remove ballast water from fore ballast chamber **8** and aft ballast chamber **9** respectively. Fore evacuation pump **37** and aft evacuation pump **38** may be submersible pumps secured to the bottom of fore ballast chamber **8** and aft ballast chamber **9**. Alternatively, fore evacuation pump **37** and aft evacuation pump **38** may be any other type of pump adapted to transfer water from one location to another location.

Fore evacuation pump **37** is adapted to route water from fore ballast chamber **8** through fore evacuation conduit **39** to fore evacuation discharge **40**, which is located near the

intersection of fore bulkhead **10** and gunwale **35**. Similarly, aft evacuation pump **38** routes ballast water through aft evacuation conduit **41** to aft evacuation discharge **42**, which is located near the intersection of aft bulkhead **11** and gunwale **35**.

It will be appreciated by those skilled in the art that fore ballast chamber **8** and aft ballast chamber **9** may be consolidated into a single ballast chamber or expanded into three or more ballast chambers. For example, mobile hunting vessel **1** could contain a double hull, with the space between the innermost hull and the outer hull serving as the ballast chamber. Alternatively, mobile hunting vessel **1** could contain multiple ballast chambers distributed throughout hull **2** or on top of hull **2** above the gunwales **35**, in an arrangement to both decrease freeboard while at the same time promoting stability. In this embodiment, a series of pipes or other means could be employed to connect each ballast tank in order to promote equilibrium between the tanks and stability of the vessel as a whole. In addition, different configurations of fore bulkhead **10** and aft bulkhead **11** are also contemplated by the invention.

It will further be appreciated by those skilled in the art that a single pump could perform the functions of filling and evacuating all ballast chambers. For example, a single pump could be located within one of the ballast chambers and configured to pump water from outside hull **2** to each of the ballast chambers. Once the ballast chambers are full, the single pump could be reconfigured (*e.g.*, by turning valves or by reversing pump flow) to expel water from the ballast chamber(s) to the open water body.

As shown in Figures 1-7 and 10, mobile hunting vessel **1** may be equipped with motor **43**, which may be mounted on flotation member **44** using motor mount **45**. Motor **43** may be any marine motor that is capable of attaching to flotation member **44**, including but not limited to an outboard motor. Motor mount **45** may take on any number of forms, but is shown in Figure 7 as a piece of angle iron designed to receive and hold motor **43** using traditional motor mounting means, such as screw clamps, bolts, and the like.

As best illustrated in Figures 2 and 3, flotation member **44** allows motor **43** to adjust to the level of water surface **24** due to the attachment of floatation member **44** to right guide member **31** and left guide member **46**. At opposing ends of flotation member **44** are rigidly attached bushings **47**, which are designed to slide vertically along right guide member **31** and left guide member **46**, respectively. Bushings **47** may be attached to flotation member **44** using any mechanical attachment means known to those skilled in the art, including without limitation welds and nut-and-bolt connections.

As shown in Figure 10, bushings **47** form a sleeve about left and right guide members **31** and **46**. Bushings **47** may be packed with packing material **48**, which may be a lubricant, a Teflon sleeve or the like, in order to maintain the slideability of bushing **47** along left and right guide members **31** and **46**. Securing means **49** may be attached to bushing **47** as shown in Figure 10 for purposes of securing packing material **48** within bushing **47**.

In an alternative embodiment, bushing **47** may be split vertically along its length in order to allow for the removal of flotation member **44** from left and right guide members **31** and **46** and for the installation or replacement of packing material **48**. In this embodiment,

the two sections of bushing **47** may be connected using securing means **49**, which may be a hinge on one side and a latch on the opposing side, a nut and bolt arrangement (Figure 10) whereby each side contains a tongue which overlaps the opposing side, and other means commonly known in the art. In this particular embodiment, securing means **49** serves the dual purpose of securing bushing **47** fast about left and right guide members **31**and **46** and holding packing material **48** in position between bushing **47** and left and right guide members **31** and **46**.

The operation of the embodiment of mobile hunting vessel **1** shown in Figures 1-10 will now be described. The hunter enters the boat and pilots the boat to a desired hunting location using motor **43** or paddles, if motor **43** is not desired by the hunter. Alternatively, mobile hunting vessel **1** may be towed by another vessel to a desired hunting location. When the hunter is ready to submerge mobile hunting vessel **1**, he or she activates intake pump **22**, thereby causing water to be drawn from outside hull **2** through intake pump **22**, through intake hose **25** and into lower portion **30**. Lower portion **30** protrudes through stern **5** where it is coupled to intake conduit **26** on the inner side. Water is directed through conduit **26** and discharged into aft ballast chamber **9** and fore ballast chamber **8** through aft intake discharge **34** and fore intake discharge **36**.

As ballast water fills fore ballast chamber **8** and aft ballast chamber **9**, mobile hunting vessel **1** sinks lower in the water, until a minimum freeboard is achieved. Of course the hunter is free to vary the amount of freeboard to suit hunting conditions. In order to increase freeboard, less ballast water is pumped into fore ballast chamber **8** and aft ballast chamber

9. In order to decrease freeboard, additional ballast water is pumped into fore ballast chamber **8** and aft ballast chamber **9**, until both chambers are full. If the hunter wishes to further decrease the amount of freeboard, the hunter may additionally open valve **50** and flood dry chamber **3** using water from either fore ballast chamber **8**, aft ballast chamber **9**, or both, depending on the location of valve **50**. Once dry chamber **3** is flooded to a point desired by the hunter, additional ballast water can be pumped into fore ballast chamber **8** and aft ballast chamber **9** to decrease freeboard to an acceptable level and further minimize the amount of surface area of mobile hunting vessel **1** above water surface **24**.

Once mobile hunting vessel **1** is submerged to a point acceptable by the hunter, the hunter can install camouflaging means **16**, which may include canopy **17** and canopy mounting means **18**, natural vegetation attached to grating **19**, or other forms of camouflage known to those skilled in the art. Alternatively, camouflaging means **16** may be installed prior to submerging mobile hunting vessel **1** or prior to leaving the dock.

After hunting activities have concluded and the hunter wishes to return to dry land, fore ballast chamber **8**, aft ballast chamber **9**, and if necessary, dry chamber **3** can be evacuated using fore evacuation pump **37** and aft evacuation pump **38**. A separate bilge pump may be necessary to evacuate remaining water from dry chamber **3**.

There are, of course, other alternate embodiments that are obvious from the foregoing descriptions of the invention, which are intended to be included within the scope of the invention, as defined by the following claims.